Mark scheme
June 2003

GCE

Geography A

Unit GGA7

General Guidance

Quality of Written Communication

As required by QCA, the marking scheme for this unit includes an overall assessment of quality of written communication. There are no discrete marks for the assessment of written communications but where questions are "Levels" marked, written communication will be assessed as one of the criteria within each level.

Level 1:   Language is basic, descriptions and explanations are over simplified and lack clarity.

Level 2:   Generally accurate use of language; descriptions and explanations can be easily followed, but are not clearly expressed throughout.

Level 3:   Accurate and appropriate use of language; descriptions and explanations are expressed with clarity throughout.

Levels Marking - General Criteria

The following general criteria relate to knowledge, understanding and their critical application and the quality of written communication as outlined in the AQA Geography A subject specification. They are designed to assist examiners in determining into which band the quality of response should be placed, and should be used when assessing the level of response an answer has achieved. It is anticipated that candidates' performances under the various dimensions will be broadly inter-related and the general guidelines for each level are as follows:

Level 1:   An answer at this level is likely to:

- display a basic understanding of the topic;
- make one of two points without support of appropriate exemplification or application of principle;
- demonstrate a simplistic style of writing perhaps lacking close relation to the term of the question and unlikely to communicate complexity of subject matter;
- lack organisation, relevance and specialist vocabulary;
- demonstrate deficiencies in legibility, spelling, grammar and punctuation which detract from the clarity of meaning.

Level 2:   An answer at this level is likely to:

- display a clear understanding of the topic;
- make one or two points with support of appropriate exemplification and/or application of principle;
- demonstrate a style of writing which matches the requirements of the question and acknowledges the potential complexity of the subject matter;
- demonstrate relevance and coherence with appropriate use of specialist vocabulary;
- demonstrate legibility of text, and qualities of spelling, grammar and punctuation which do not detract from the clarity of meaning.

Level 3:   An answer at this level is likely to:

- display a detailed understanding of the topic;
- make several points with support of appropriate exemplification and/or application of principle;
- demonstrate a sophisticated style of writing incorporating measured and qualified explanation and comment as required by the question and reflecting awareness of the complexity of subject matter and incompleteness/tentativeness of explanation;
- demonstrate a clear sense of purpose so that the responses are seen to closely relate to the requirements of the question with confident use of specialist vocabulary;
- demonstrate legibility of text, and qualities of spelling, grammar and punctuation which contribute to complete clarity of meaning.

NB   A perfect answer is not usually required for full marks. Clearly it will be possible for an individual candidate to demonstrate variable performance between the levels. In such cases the principle of best-fit should be applied. Experience suggests that the use of exemplars within this mark scheme and the discussion which takes place during the Standardisation Meeting normally provides sufficient guidance on the use of levels in marking.

Annotation of Scripts

- Where an answer is marked using a levels of response scheme the examiner should annotate the script with 'L1', 'L2' or 'L3' at the point where that level is thought to have been reached. The consequent mark should appear in the right hand column. Where an answer fails to achieve Level 1, zero marks should be given.

- Where answers do not require levels of response marking, each script should be annotated to show that one tick equals one mark. It is helpful if the tick can be positioned in the part of the answer which is thought to be credit-worthy.

General Advice

It is important to recognise that many of the answers shown within this marking scheme are only exemplars. Where possible, the range of accepted responses is indicated, but because many questions are open-ended in their nature, alternative answers may be equally credit-worthy. The degree of acceptability is clarified through the Standardisation Meeting and subsequently by telephone with the Team Leader as necessary.

AQA

Question 1

(a)   Responses should note that Figure P1 shows the expected changes along a transect from sea inland.

Changes related to nature of dunes:

Nature of vegetation cover, and suggest various relationships with increasing distance from the sea e.g. amount of vegetation cover, soil moisture, pH.

Objectives are clearly based on expectations indicated by model – thus model provides direct stimulus.

The essence of the enquiry as indicated by the title and aim is to see the degree to which the reality at Ainsdale matches up with the theory displayed on the model.

Level 1	Describes some of the characteristics of psammosere. Heavy reliance on Figure P1. No reference to own fieldwork.	**1 mark**
Level 2	Relates characteristics of psammosere to objectives stated. Awareness of the purpose of the enquiry to relate model and its predictions to reality. Implicit reference to own fieldwork.	**2-3 marks**
Level 3	Clearly relates characteristics of psammosere to objectives and aim/title. Clear awareness of the purpose of the enquiry and the need to determine degree of fit. Explicit reference to and targeted use of own fieldwork.	**4 marks**

(4 marks)

(b)   Information supplied <u>must be used</u> before credit given. No marks simply for copying information.

Either 2 x 1 per undeveloped point, or 1 x (1+1) for a developed point.

- Large area of sand exposed (1km) (1) at low tide (1). (Fig.P2b). Large area of sand will dry out (1).
- Large supply of land from Mersey and Ribble (1) (Fig. P2a)
- Prevailing winds – south westerlies (1) – are blowing from sea to land (1) (Fig. P2a)
- Likely that largest area of dunes will display variety of expected characteristics (1)
- Easily accessible via road leading to Ainsdale on Sea (1); parking on beach at start of transect (1).
- Long established (1).

(2 marks)

Question 2

(a) 1 mark for recognition of continuation of segments. Allow up to 3 marks for reference to own fieldwork.

- √c - Compass needed to ensure transect straight. (1) Bearing of 120° needed (1) for transect at right angles to coast. (1)
- √r - Ranging pole inserted at start of segment (1) and second ranging pole at end (1) where another clear change to slope (1).
- √t - Tape placed on ground joining together both ranging poles (1) to record length of segment. (1) Needs to be pulled tight to ensure accuracy. (1)
- √cl - Clinometer points landward and angle recorded (1) and then seaward (backsight) and angle recorded as a check (1). Clinometer lined up with same sections on ranging poles (1) to ensure correct slope identified. (1) 1x1 per undeveloped point, 1+1 per developed point. At least 1 mark reserved for reference to each of compass (c), ranging pole (p), tape (t) and clinometer (cl). Max 3 marks on any one.   **(8 marks)**

(b) Strengths √s

Application of same sequence to each segment (1) makes it a fair test (1) no bias involved (1) – each quadrat within range of die (1) has equal chance of inclusion. (1)

Weaknesses √w

Different distance from transect (1) reduces comparability. Vegetation perhaps 6 metres from transect (1) may not be representative of transect itself. No allowance made for length of segment (1) only one quadrat per segment yet length varies from 3.3 metres to 40.2 metres. (1)

Allow up to 3 marks on either strength or weakness.
Allow up to 2 marks for reference to own fieldwork.   **(4 marks)**

(c) Likely response

Collect sample of soil at each segment (1) and weigh specified amount and crucible. (1) Place in oven at 105°C overnight to extract water.(1)

Reweigh soil sample and crucible. (1) Calculate wet weight and dry weight to determine amount of water. (1)

Could deduce percentage –

$$\frac{\text{Weight loss on drying}}{\text{Weight of wet soil}} \times 100 \ (1)$$

Advantages

More accurate (1); greater variation than number 1 to 10 (1).
Minimum (1) for description, maximum (3).
Minimum (1) for advantage, maximum (3).   **(4 marks)**

AQA

Question 3

(a)   (i)   Sketch should identify:

                                        embryo dunes,
                                        fore dunes,
contrasting amount of vegetation cover (v) and further detail e.g. marram grass, contrasting vegetation (d).

Labels should relate to contrasting height of dunes appropriate terminology – embryo dunes, fore dunes; amount of vegetation cover versus sand; type of species and contrast.

6 + 1 per valid label.
Allow 2 marks for sketch
1 for showing relative height of dunes
1 for showing relative % vegetation cover.   **(6 marks)**

    (ii)   Photographs

Clearly show extensive beach area for supply of sand. Low and intermittent embryo dunes with lyme/marram grass, fore dunes are higher with greater vegetation cover but close ups indicate large localised areas of sand.

First ridge is higher again with more complete cover and greater variety of species.

Dune slack occurs after ridge and seems quite extensive and flat. Variation in species and absence of marram grass.

Older dunes seen in distance – appear lower with complete vegetation cover but no information on species in detail. Pine plantation in top right hand corner – no evidence of climatic climax – oak, ash, buildings also in distance – settlement of Ainsdale.

Clear evidence for changes up to yellow dunes/ridges but less clear beyond this.

Approximation to model less apparent – especially climatic climax not reached.

        Level 1   Describes photographs and features of dunes/vegetation.
                          Appropriate terms used. Description may be detailed.   **1-3 marks**

        Level 2   Begins to relate features of vegetation cover and/or diversity to predicted changes suggested by Figure P1. Will present evidence supporting link. Will probably focus on embryo, fore and yellow dunes. Will be some, possibly implicit evaluation.   **4-6 marks**

Level 3   Clearly relates features of vegetation cover and diversity to predicted changes shown on Figure P1. Detailed evidence offered supporting link. Will refer to extent of transect and not reducing evidence; reducing link inland. May comment on absence of climatic climax. Will evaluate.   **7-8 marks**
(8 marks)

(b)   (i)   2+1+1 for correctly marking on length and angle of each segment.

19 similar to 13. 20 similar to 18. No lower than first 2 squares from base.   **(4 marks)**

(ii)
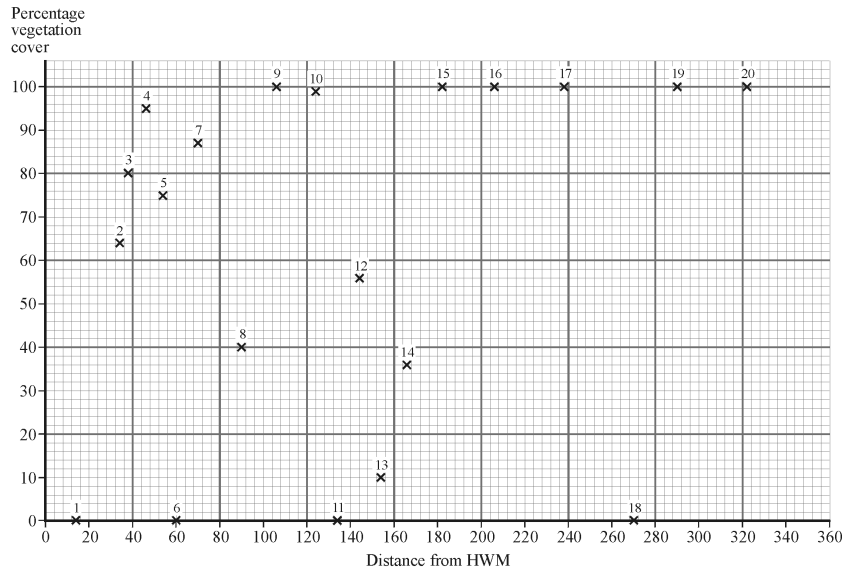
2+1+1 for correctly plotting information for segments 5 and 14.

N.B. one mark for correct placement on vertical axis and one mark for horizontal axis. Max 3 if segments not numbered.   **(4 marks)**

(iii)

Relationship is not clear-cut. No general progression of increasing vegetation. Not possible to place best fit line onto scatter graph which would be expected if there was a link between distance from HWM and 7% vegetation cover.

Overall there is a tendency for higher percentages to be found furthest away from HWM – 5/6 of last 6 values at 100% (but one - 18 is 0%). Values tend to be lower nearer HWM – but 3 segments 4, 9 and 10 are in excess of 90%.

Reasons relate to small scale changes in dune environment – colonisation on embryo, fore dunes and yellow dune ridges – which appear to have almost complete cover in places – e.g. segment 4 dune slacks: e.g. segment 10, segment 9 on landward side and therefore more sheltered, more stable. Generally greater cover further back on grey dunes – but exceptions here – perhaps result of blowouts.

Marram grass, which is predominant nearer HWM (with lyme) and sea couch, adapts to conditions and thrives in such areas resulting in relatively complete cover. Can cope with relatively dry environment, long roots, leaves which align to wind direction. Further inland, greater amount of moisture,

humus – i.e. better soils result in more complete cover i.e. conditions more favourable.

Limited area surveyed – 1 + ½ metre quadrat per segment may be noted and extent to which quadrat typical may be questioned.

Level 1	Describes relationship, offers some evidence for points noted, may be detailed and laboured.	**1-2 marks**
	Imbalanced, i.e. only generalised explanation.	
Level 2	Clear description of relationship. Perceives limited nature of relationship and offers evidence in support of this.	**3-4 marks**
Level 3	Clearly perceives limited relationship – notes overall increase in percentage of vegetation cover with increasing distance from HWM but aware of its obviously imperfect characteristic. Evidence clearly targeted to this. Reasons given which are specific to date/transect, e.g. may refer back to nature of segments on transect, or limited data available and questions extent to which it is representative of segments – especially larger segments.	**5-6 marks (6 marks)**

(iv) Either 0.05 or 0.01 (1) level of significance plus valid reason (1) e.g. adequate levels of confidence – either 99 or 95%… higher not needed as no lives endangered as with medical research; but not lower as margin of error is too great. Degrees of freedom – 20 (1) as determined by sample size – 20 pairs of segments or n-l / n-2 … sample size –1 / sample size -2. (1) Critical value either 0.377 or 0.534. (1)   **(5 marks)**

(v) The value obtained exceeds the critical value at either 0.05 level but not 0.01 level of significance. (1) This means that the hypothesis stated in question (b iv) must be rejected at 99% level but can accepted at 95% level. (1) With regard to objectives, there is a relationship which is significant, (1) Positive correlation (1). Erratic nature of scatter graph. (1)   **(3 marks)**

(c) (i) 3+1 for accurately plotting components of compound bar for segment 7. Maximum 2 if key not used.   **(3 marks)**

(ii) Figure 5 clearly indicates greater diversity as distance from HWM increases.

Near HWM, dominance of colonising grasses – lyme, marram and sea couch, with limited presence of anything else – only sea rocket in first 6 segments. Further inland – segments 7 – 13, thistle and grasses still dominant but other species also added – ragwort.

Even further from sea, segments 15-20 (except 18) indicate greatest diversity with marram grass still present but also other species such as creeping willow, bramble, field pansies – with greatest diversity at segments 15, 16 and 20 with 10, 10 and 11 species respectively.

Reasons likely to relate to –
                        sand, saline, and therefore inhospitable conditions near
                        sea; presence of marram becomes more important further

inland where depth of land greater and long roots needed to tap water as well as adaptations to reduce evapotranspiration (shiny leaves; fold to reduce surface area and align to wind direction).

Further away from HWM, conditions more moderate – less exposed , less windy and soils better – more moisture; humus due to earlier colonisation by marram grass means more favourable growing conditions… allowing competition from other species such as bramble, creeping willow.

Explanation may relate to dune topography – older grey dunes furthest from sea having greatest diversity in contrast to grasses of embryo and yellow dunes. Dune slacks – segment 11, 14, 16 and 17 show unexpected contrast with clear diversity in 16, 17 as expected due to increased moisture and presence of such species as creeping willow whilst in 14 only 3 species (including expected creeping willow) and minimal cover by 3 species in 11.

Level 1	Describes changes as transect progresses inland. Will refer to evidence from graph. Tentative link to objective 2.	**1-3 marks**
Level 2	Clear description of changes – evidence offered in support. Targets information to objective 2, offers some explanation which may be generalised.	**4-6 marks**
Level 3	Description and evidence of changes clearly targeted to objective 2. Explanation offered which is at least partly specific to transect.	**7-8 marks (8 marks)**

(d)   Moisture levels recorded show limited variation. Most segments recorded 1 – indicating a dry environment. Exceptions – segments 1 and 2 due to proximity to HWM and much is beach area – water table relatively high – but saline. Segments 11 and 14 show high levels of moisture which represent slacks. Surprisingly, other slacks – segments 16, 17 show moisture levels on 1 and 3 only.

Links to vegetation cover –
> Score of 8 and 6 for segments 1 and 2 relate to 0 and 64% indicating no link apparent. Score of 9 and 10 in segments 11 and 14 relate to 3 and 36%. Score of 3 in segment 17 (also a slack) relates to 100%. Clearly no real link apparent with high scores giving rise to both relatively high covers and none; whilst dry environments with a score of 1.0 gives a range of 100% cover to 0% cover.

Links to vegetation diversity –
> Equally not apparent; the most diverse segment 20 has a moisture content of 1 with segment 2 having only 2 colonising species but a moisture content of 6. Segment

13 has a moisture content of 10 with only 3 species as does segment 1 with a moisture content of 9.

Level 1   Describes changes in moisture levels only or describes moisture and vegetation separately.   Some evidence quoted illustrating changes.   **1-3 marks**

Level 2   Changes in moisture are described and linked to changes in either vegetation cover and/or diversity.   Evidence offered in support. Tentative evaluation.   **4-6 marks**

Level 3   Changes in moisture are and vegetation cover and diversity clearly noted and linked evidence targeted. Awareness of lack of relationship.   Explicit focussed evaluation.   **7-8 marks**
                                                                        (8 marks)

Question 4

Level 1   Simple statements made with reference to objectives or overall aim. May focus more on some aspects than others, e.g. characteristics of component rather than reasoning and be imbalanced. May jump about and be poorly structured. No reference to own fieldwork experiences. Lacks awareness of limitations or may refer to limitations only and neglect to summarise findings.   **1-3 marks**

Level 2   Some developments of statements. Refers to all objectives (perhaps in varying detail) and in appropriate order or clear reference to aim/title. May make intermittent reference to evidence or refer in generalised way. Will show some awareness of reliability of findings and limitations and will show their own experience of conducting an enquiry by drawing on own experience. If good on either summary or limitations but no reference to other element, max 5   **4-7 marks**

Level 3   As Level 2, but will refer precisely and specifically to data collected as evidence. Will be clearly aware of limitations. Will realise extent to which aims/objectives have been realised. Will be critically evaluative of enquiry. May suggest meaningful extensions of study. Will clearly be applying own experiences of fieldwork and enquiry.   **8-10 marks**

AQA

Question 5

(a)   Any 2 valid soil characteristics, measurable in the field – e.g. texture, temperature, pH, humus/organic content. (1)

Justification of inclusion –

General – seek to determine whether changing nature of certain soil characteristic will link to changes in vegetation cover and/or diversity (1) – given failure to ascertain link with soil moisture.

Specifically –

Could relate to individual characteristics – e.g. would expect pH to become more acidic inland (1) which would mean change from salt tolerant species such as lyme, marram (1) to others such as bracken which prefer more acid environment. (1). Organic matter provides nutrients for more varied species and should result in greater vegetation cover. Also should have impact on moisture (1) and encourage diversity resulting in succession (1).

(5 marks)

(b)   (i)   Simple, general, valid, open hypothesis, (1) e.g. use of the area for recreation/tourism will damage the environment. Management strategies have an effect on the ecosystem.

Clear, specific, targeted, directional hypothesis, (2) e.g. as use of area for recreation/tourism increases, damage caused to dune environment will also increase. The planting of conifers will have prevented a psammosere from occurring. There will be greater colonisation near HWM in areas where car parking is not permitted on the beach than in areas where it is allowed. (2)   **(2 marks)**

(ii)   1x1 for item of primary data, 1x1 for item of secondary data, 4x1 for outlining exactly what would be collected with a minimum of 1 for primary and secondary; maximum 3.

e.g.

Visitor counts – primary data. (1) Along identified paths and informal paths (1) for 5 minutes. (1) Taken at the same predetermined time. (1) Recounting type of visitor e.g. family, students. (1) Information where damage most apparent from Ranger – secondary (1) and reference to impact on sand dunes – blowouts (1) or when damage occurs during year. (1)

Wide variety of responses likely – actual response will depend on answer to bi. Many clues on Figure P2b.   **(6 marks)**